

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of the Claims:**

- 1-11. *(Canceled)*
12. *(Currently Amended)* A radiation cross-linkable medical angioplasty balloon or radiation cross-linkable medical catheter made from a thermoplastic cross-linkable composition, said thermoplastic cross-linkable composition comprising: (a) a thermoplastic polymer selected from the group consisting of nylon, a copolyester copolymer of poly(1,4-butanediol terephthalate) and poly(alkylene ether terephthalate), a copoly(ether-ester-amide) polymer, [[and]] copolymers of polylaurinlactam and polytetrahydrofuran, and a reaction product of an aliphatic polyisocyanate and a polyahl; and (b) a monomer cross-linker comprising acrylate monomer crosslinkers, said monomer cross-linker present in said composition in an amount sufficient to provide cross-linking of at least a portion of said thermoplastic polymer to convert said portion from a thermoplastic to a thermoset state upon irradiation of said composition with energy from a radiation source.
13. *(Original)* A radiation cross-linked medical angioplasty balloon or radiation cross-linked medical catheter made by irradiating the radiation crosslinkable medical angioplasty balloon of claim 12 with energy from a radiation source.
14. *(Original)* The radiation cross-linkable medical angioplasty balloon or radiation cross-linkable medical catheter of claim 12, wherein said thermoplastic polymer is a thermoplastic elastomer.
15. *(Original)* The radiation cross-linkable medical angioplasty or radiation cross-linkable medical catheter balloon of claim 12, wherein said thermoplastic polymer is a block copolymer containing hard and soft segments.

16. **(Original)** The radiation crosslinked medical angioplasty balloon or radiation cross-linked medical catheter of claim 13, wherein said energy is in the form of free radical initiating or ionizing radiation selected from the group consisting of beta particles, gamma particles, ultraviolet radiation, electron beam radiation, and combinations thereof.

17. **(Original)** The radiation cross-linkable medical angioplasty balloon or radiation cross-linkable medical catheter of claim 12, wherein said monomer cross-linker is trimethylolpropane triacrylate.

18. **(Currently Amended)** A radiation cross-linked medical angioplasty balloon or radiation cross-linked medical catheter made from a cross-linked composition, wherein said cross-linked composition is produced by irradiating a crosslinkable composition comprising: (a) a thermoplastic polymer selected from the group consisting of nylon, a copolyester copolymer of poly(1,4-butanediol terephthalate) and poly(alkylene ether terephthalate), a copoly(ether-ester-amide) polymer, [[and]] copolymers of polylaurinlactam and polytetrahydrofuran, and a reaction product of an aliphatic polyisocyanate and a polyahl; and (b) a monomer cross-linker comprising acrylate monomer crosslinkers, said monomer cross-linker present in said composition in an amount sufficient to cross-link at least a portion of said thermoplastic polymer to convert said portion from a thermoplastic to a thermoset state upon irradiation of said composition with energy from a radiation source.

19. **(Original)** The radiation cross-linked medical angioplasty balloon or radiation cross-linked medical catheter of claim 18, wherein said thermoplastic polymer is a thermoplastic elastomer.

20. **(Original)** The radiation cross-linked medical angioplasty balloon or radiation cross-linked medical catheter of claim 18, wherein said thermoplastic polymer is a block copolymer containing hard and soft segments.

21. **(Original)** The radiation crosslinked medical angioplasty balloon or radiation cross-linked medical catheter of claim 18, which is produced by irradiating said cross-linkable composition with energy in the form of free radical initiating or ionizing radiation selected from the group consisting of beta particles, gamma particles, ultraviolet radiation, electron beam radiation, and combinations thereof.

22. **(Original)** The radiation cross-linked medical angioplasty balloon or radiation cross-linked medical catheter of claim 18, wherein said monomer cross-linker is trimethylolpropane triacrylate.

23. **(Canceled)**

24. **(Currently Amended)** A device comprising: fabricated from the  
a radiation crosslinked composition of claim 23 made by irradiating a radiation  
crosslinkable composition with energy from a radiation source, the radiation crosslinkable  
composition comprising:

(a) a thermoplastic copoly(ether-ester-amide) polymer, wherein the the  
polyamide segments of the copoly(ether-ester-amide) polymer consist of polyamide Nylon 12  
segments; and

(b) a monomer cross-linker selected from the group consisting of  
triallylisocyanurate ("TAIC"), triallylcyanurate ("TAC"), and combinations thereof,

wherein said radiation crosslinked composition is in the form of an article a  
device selected from the group consisting of heat shrinkable tubing[[,]] and heat-shrinkable film;  
seals, gaskets, and o-rings.

25. **(Canceled)**

26. **(Currently Amended)** An article suitable for sterilization, surface modification, or surface grafting, comprising

a cross-linked composition, wherein said cross-linked composition is produced by irradiating, with gamma or electron beam radiation, a crosslinkable composition[[,]] comprising:

(a) a thermoplastic polymer selected from the group consisting of a copolyester copolymer of poly(1,4-butanediol terephthalate) and poly(alkylene ether terephthalate), a copoly(ether-ester-amide) polymer, [[and]] copolymers of polylaurinlactam and polytetrahydrofuran, and a reaction product of a polyisocyanate and a polyahl, and combinations thereof, wherein the polyamide segments of the copoly(ether-ester-amide) polymer consist of polyamide Nylon 12 segments, and

(b) a monomer cross-linker selected from the group consisting of ~~allylic~~ ~~monomer crosslinkers~~, methacrylate monomer crosslinkers, acrylate monomer crosslinkers, and combinations thereof; said monomer cross-linker present in said crosslinkable composition in an amount sufficient to cross-link at least a portion of said thermoplastic polymer to convert said portion from a thermoplastic to a thermoset state upon gamma or electron beam irradiation of said composition with energy from a gamma or electron beam radiation source,

wherein the amount of crosslinked composition is sufficient to increase the tolerance to said sterilization, surface modification or surface grafting of the crosslinked article over that of the article alone without the crosslinked composition, ~~with the proviso that with respect to the copoly(ether-ester-amide) copolymer the polyamide segments of the copoly(ether-ester-amide) copolymer consist of polyamide Nylon 12 segments.~~

27. **(Original)** The article of claim 26, wherein said article is a medical device.

28. **(Previously Presented)** The article of claim 26, wherein said article has been subjected to gamma or electron beam radiation or heat in an amount sufficient to sterilize that article or wherein said article has been subjected to gamma or electron beam radiation in an amount sufficient to graft or modify the surface of that article.

29-31. **(Canceled)**

32. *(Currently Amended)* An wholly or partially encapsulated device, wholly or partially encapsulated with a crosslinked composition produced by irradiating a crosslinkable composition comprising: (a) a thermoplastic polymer selected from the group consisting of nylon, a copolyester copolymer of poly(1,4-butanediol terephthalate) and poly(alkylene ether terephthalate), a copoly(ether-ester-amide) polymer, ~~[[and]]~~ copolymers of polylaurinlactam and polytetrahydrofuran, and a reaction product of a polyisocyanate and a polyahl; and combinations thereof, and (b) a monomer cross-linker selected from the group consisting of allylic monomer crosslinkers, methacrylate monomer crosslinkers, acrylate monomer crosslinkers, and combinations thereof; with the proviso that for the reaction product of a polyisocyanate and a polyahl the monomer acrylic or methacrylic cross-linker is other than trimethylolpropane triacrylate, trimethylolpropane trimethacrylate, and triacrylformal, said monomer cross-linker present in said composition in an amount sufficient to provide cross-linking of at least a portion of said thermoplastic polymer from a thermoplastic to a thermoset state upon irradiation of said composition with energy from a radiation source, and wherein the crosslinked encapsulation composition is expanded to a larger size than the device to be encapsulated, by a heating and forming process, and then cooled to retain the expanded size, said expanded crosslinked encapsulation composition possessing the characteristic of "memory" due to the crosslinked polymer comprising the crosslinked encapsulation composition, and wherein the device to be wholly or partially encapsulated is placed within the expanded shaped object with "memory", and wherein heat is applied to cause the expanded crosslinked encapsulation composition with "memory" to contract and wholly or partially encapsulate the device within.

33. *(Original)* The device of claim 32, wherein said device is a medical device.

34. *(Currently Amended)* ~~[[The]]~~ A radiation crosslinked composition made by irradiating a ~~[[the]]~~ radiation crosslinkable composition comprising: (a) a polyamide/polyether block (PEBA) copolymer and (b) a monomer cross-linker selected from the group consisting of allylic monomers, acrylic monomers, methacrylic monomers and combinations thereof, with energy from a radiation source, with the proviso that the linkages between the hard and soft segments of the polyamide/polyether block (PEBA) copolymer consist

of amide linkages and the polyamide segments of said polyamide/polyether block (PEBA) copolymer consist of polyamide Nylon 12 segments, wherein said radiation crosslinked composition is in the form of an article selected from the group consisting of heat shrinkable tubing and heat-shrinkable film.

35. (New) A thermoset article possessing a shape memory comprising:  
a radiation crosslinked composition made by irradiating a radiation crosslinkable composition with energy from a radiation source, the radiation crosslinkable composition comprising:

(a) a thermoplastic polymer selected from the group consisting of a polyamide elastomer polymer, nylon, a copolyester copolymer of poly(1,4-butanediol terephthalate) and poly(alkylene ether terephthalate), a copoly(ether-ester-amide) polymer, copolymers of polylaurinlactam and polytetrahydrofuran, a reaction product of a polyisocyanate and a polyah, and combinations thereof; and

(b) a monomer cross-linker selected from the group consisting of allylic monomer crosslinkers, methacrylate monomer crosslinkers, acrylate monomer crosslinkers, and combinations thereof,

wherein the radiation crosslinked composition shrinks when heated.

36. (New) The thermoset article of claim 35, wherein the thermoplastic polymer comprises the copoly(ether-ester-amide) polymer, wherein the polyamide segments of the copoly(ether-ester-amide) polymer consist of polyamide Nylon 12 segments.

37. (New) The thermoset article of claim 35, wherein the monomer cross-linker is selected from the group consisting of triallylisocyanurate ("TAIC"), triallylcyanurate ("TAC"), and combinations thereof.

38. (New) A wholly or partially encapsulated medical implant device comprising:  
a medical device;



a radiation crosslinked composition wholly or partially encapsulating said medical device and made by irradiating a radiation crosslinkable composition with energy from a radiation source, the radiation crosslinkable composition comprising:

(a) a thermoplastic polymer selected from the group consisting of a polyamide elastomer polymer, nylon, a copolyester copolymer of poly(1,4-butanediol terephthalate) and poly(alkylene ether terephthalate), a copoly(ether-ester-amide) polymer, copolymers of polylaurinlactam and polytetrahydrofuran, a reaction product of a polyisocyanate and a polyah, and combinations thereof; and

(b) a monomer cross-linker selected from the group consisting of allylic monomer crosslinkers, methacrylate monomer crosslinkers, acrylate monomer crosslinkers, and combinations thereof,

wherein the radiation crosslinked composition is in the form of a heat shrunk shaped object.

39. (New) The wholly or partially encapsulated medical implant device of claim 38, wherein the thermoplastic polymer comprises the copoly(ether-ester-amide) polymer, wherein the polyamide segments of the copoly(ether-ester-amide) polymer consist of polyamide Nylon 12 segments.

40. (New) The wholly or partially encapsulated medical implant device of claim 38, wherein the monomer cross-linker is selected from the group consisting of triallylisocyanurate ("TAIC"), triallylcyanurate ("TAC"), and combinations thereof.

41. (New) A thermoset article possessing a shape memory and formed by the process comprising:

irradiating a radiation crosslinkable composition with energy from a radiation source to form a radiation crosslinked composition, the radiation crosslinkable composition comprising (a) a thermoplastic polymer selected from the group consisting of a polyamide elastomer polymer, nylon, a copolyester copolymer of poly(1,4-butanediol terephthalate) and poly(alkylene ether terephthalate), a copoly(ether-ester-amide) polymer, copolymers of

polylaurinlactam and polytetrahydrofuran, a reaction product of a polyisocyanate and a polyahl, and combinations thereof; and (b) a monomer cross-linker selected from the group consisting of allylic monomer crosslinkers, methacrylate monomer crosslinkers, acrylate monomer crosslinkers, and combinations thereof;

heating the radiation crosslinked composition;

expanding the radiation crosslinked composition;

cooling the radiation crosslinked composition to retain a size obtained in the expanding step;

wherein the radiation crosslinked composition shrinks when heated.

42. *(New)* The thermoset article of claim 41, wherein the thermoplastic polymer comprises the copoly(ether-ester-amide) polymer, wherein the polyamide segments of the copoly(ether-ester-amide) polymer consist of polyamide Nylon 12 segments.

43. *(New)* The thermoset article of claim 41, wherein the monomer cross-linker is selected from the group consisting of triallylisocyanurate ("TAIC"), triallylcyanurate ("TAC"), and combinations thereof.

44. *(New)* A method for producing a thermoset article possessing a shape memory comprising:

irradiating a radiation crosslinkable composition with energy from a radiation source to form a radiation crosslinked composition, the radiation crosslinkable composition comprising (a) a thermoplastic polymer selected from the group consisting of a polyamide elastomer polymer, nylon, a copolyester copolymer of poly(1,4-butanediol terephthalate) and poly(alkylene ether terephthalate), a copoly(ether-ester-amide) polymer, copolymers of polylaurinlactam and polytetrahydrofuran, a reaction product of a polyisocyanate and a polyahl, and combinations thereof; and (b) a monomer cross-linker selected from the group consisting of allylic monomer crosslinkers, methacrylate monomer crosslinkers, acrylate monomer crosslinkers, and combinations thereof;

heating the radiation crosslinked composition;



expanding the radiation crosslinked composition; and  
cooling the radiation crosslinked composition to retain a size obtained in the  
expanding step,

wherein the radiation crosslinked composition shrinks when heated.

45. (New) The method of claim 44, wherein the thermoplastic polymer comprises the copoly(ether-ester-amide) polymer, wherein the polyamide segments of the copoly(ether-ester-amide) polymer consist of polyamide Nylon 12 segments.

46. (New) The method of claim 44, wherein the monomer cross-linker is selected from the group consisting of triallylisocyanurate ("TAIC"), triallylcyanurate ("TAC"), and combinations thereof.

47. (New) A method for forming a wholly or partially encapsulated medical implant device comprising:

providing a medical device;

irradiating a radiation crosslinkable composition with energy from a radiation source to form a radiation crosslinked shaped object, the radiation crosslinkable composition comprising (a) a thermoplastic polymer selected from the group consisting of a polyamide elastomer polymer, nylon, a copolyester copolymer of poly(1,4-butanediol terephthalate) and poly(alkylene ether terephthalate), a copoly(ether-ester-amide) polymer, copolymers of polylaurinlactam and polytetrahydrofuran, a reaction product of a polyisocyanate and a polyahl, and combinations thereof; and (b) a monomer cross-linker selected from the group consisting of allylic monomer crosslinkers, methacrylate monomer crosslinkers, acrylate monomer crosslinkers, and combinations thereof;

heating the radiation crosslinked shaped object;

expanding the radiation crosslinked shaped object to a size larger than the medical device;

cooling the expanded radiation crosslinked shaped object to retain the size obtained in the expanding step;

placing the medical device within the expanded radiation crosslinked shaped object; and

heating the expanded radiation crosslinked shaped object to shrink the expanded radiation crosslinked shaped object and thereby wholly or partially encapsulate the medical device.

48. *(New)* The method of claim 47, wherein the thermoplastic polymer comprises the copoly(ether-ester-amide) polymer, wherein the polyamide segments of the copoly(ether-ester-amide) polymer consist of polyamide Nylon 12 segments.

49. *(New)* The method of claim 47, wherein the monomer cross-linker is selected from the group consisting of triallylisocyanurate ("TAIC"), triallylcyanurate ("TAC"), and combinations thereof.